Disease Detection and Online Scheduling System for Doctor's Appointment

Amulya M B [1], Deeksha Meena Sanath [2], Deepthi Singh [3], Mithila S [4]

UG Student, Dept of Computer Science and Engineering, GSSSIETW, Mysuru, Karnataka, India [1]

UG Student, Dept of Computer Science and Engineering, GSSSIETW, Mysuru, Karnataka, India [2]

UG Student, Dept of Computer Science and Engineering, GSSSIETW, Mysuru, Karnataka, India [3]

UG Student, Dept of Computer Science and Engineering, GSSSIETW, Mysuru, Karnataka, India [4]

ABSTRACT: The patients identify good doctors available on the word of mouth basis from other patients. But all doctors might not suit all patients. Through this application, an attempt to bridge this gap is done. The patients can connect with doctors in a simple hassle free way. Patients can get a basic idea of their health issues by identifying symptoms. The patients can connect to the identified doctors available at a given point of time and location. This will help doctors to reach patients in a more effective way and serve the society better.

KEYWORDS: Appointment scheduling, android application, disease detection.

I. INTRODUCTION

The establishment and improvement of doctor-patient interaction system is a very important requirement, especially now when the mobile communication technology is developing rapidly. The advantages of mobile web can be made full use of to make up the time and distance gap between doctors and patients and to provide fast and adequate medical services. Through the connection between mobile terminals and specific service, both doctors and patients are able to obtain required data to achieve a better interaction. Android is a Linux based open source operating system which is mainly used in portal devices with excellent performance thus making its market share growing. The platform, Web services and database technology are all gradually maturing, so that we can develop a doctor patient interaction system on Android platform to meet the needs of the patient and provide doctors more efficient and convenient means of communication with patients [1].

Here we present a doctor-patient interaction system based on Android. Its excellent performance on mobile terminals makes it possible that patients are able to access the hospital server to obtain the necessary suggestion about the symptoms and interact with the doctors on their own mobile terminals, while doctors can track patients whenever and wherever possible or make a diagnosis of alert depends on the monitoring data from the hardware of mobile terminals. Paper describes the needful things that the Doctor has to do every day. In this paper, we solve this problem by proposing a new system based on android technology, through that the doctor can manage his/her appointments from anywhere. Our solution is to build a system that will help the needful people or every person who wants to save their precious time. Any needed information can be supplied at the time of installation. This removes the need for a technician to install software and enormously quickens the implementation of a patient monitoring system [2].

II. FEASIBILITY STUDY

The feasibility study is major factor which contributes to analysis of system. In earlier stages of S/W development, it is necessary to check whether system is feasible or not. There are 4 aspects of checking feasibility. Detail study was carried out to check workability of proposed system, so the feasibility study is system proposal regarding to its workability, impact on organization, ability to meet user requirements & effective use of resources thus when application progresses, it normally goes through a feasibility study & risk analysis [3].

III.   EXISTING SYSTEM

The specialization of the doctors available is limited and cannot select symptoms. It is used only for searching of hospitals, medical stores and clinics. It can view the application but cannot book appointments with doctors. The applications do not provide the facility of saving patient reports and health records. Appointment confirmation is time consuming. The emergency appointments are not provided by the applications. The general tips are not provided by the application.

IV.   PROPOSED SYSTEM

The proposed system consists of two panels: Doctor and Patient. The users will first have to download the application and install it in their mobile devices. Once installed, this application will remain into the device permanently until the user deletes it or uninstalls it.

The patient and doctor will have to register into the application for the first time. On registering, the patient will receive Patient-ID. The patient can use this ID along with a password for logging into the app each time he uses it. After logging in, the patient will have to select a filtration type, i.e., Specialization of the doctors. If he unsure of his health condition, he is able to input his symptoms from the given set. A report of the health condition of the patient is generated.

Based on the location and the type of health condition, the doctors list will be displayed. The patient can select any particular doctor and view his profile [4]. If the user selects a doctor, the automated scheduling system will schedule an appointment based on the date and time given by the user. The user may request for new timings, or reschedule based on his convenience. The databases will get updated accordingly and both the patient and the doctor receive a notification. The doctor will be able to view the details of the patient and their health report [5] [6]. The add-on to this system is that the patient will receive a reminder notification 2 hours before the actual appointment. This will be very useful in case the patient tends to forget the appointment.

Upon arrival of the patient at the doctor's clinic, the doctor can suggest medicines and further references to other doctors if necessary.

The patients records, appointment dates, suggestions will all be stored in the database for viewing by patients and doctors [7].

An add-on feature to this application is that the patients are suggested home remedies to common diseases like the cold, flu, fever and so on.
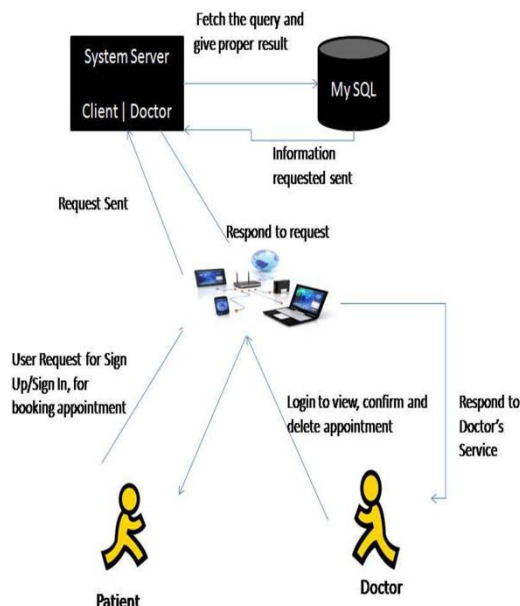

Figure 2: System Design of Pat2Doc

DESIGN INTERFACE

The front end design is simple and user-friendly. Once the application is started the patient will register himself and then he will be able to log in into the application. The patient can make an appointment by selecting the preferred doctor, date and time. The appointments are managed by the admin through a website. The admin also registers a doctor. Admin is able to view doctors, view patient's records and view feedback also. The back end design includes a server which acts as a centralized database. All the data of the registered doctors and patients and the data regarding the appointments are placed on the server. The data is approached and shared by using API'S between the website and the android application.

A. ANDROID

Android is an open source operating system which is Linux based and android platform is used to develop many useful applications for the mobile devices that makes the tasks of everyday life easy and faster. The android platform also provides built in database (SQLite database) and Web services. Android platform provides connectivity between the server and the application using certain APIs; hence the task of making a doctor appointment using a mobile application connected to a website located on the server becomes easy using the advanced features and libraries available on the android platform.

B. SOFTWARE DEVELOPMENT TOOLS

The following software tools were used during the development process.
- Android studio 2.1.1 and SDK plug-in
- JDK 6
- Android 6.0 (Marshmallow) installed packages
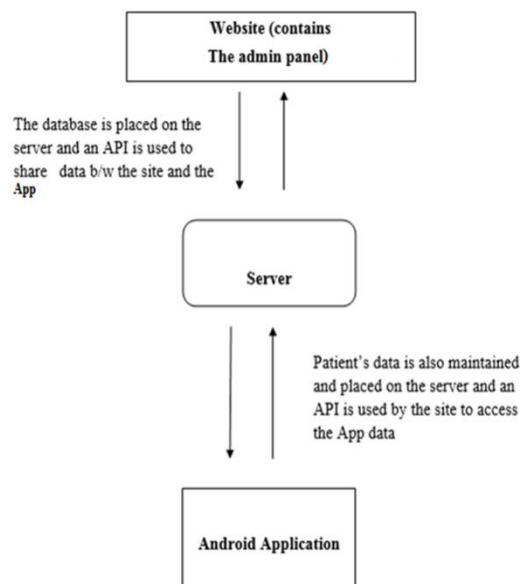- Ipage Server
- HTML
- Php

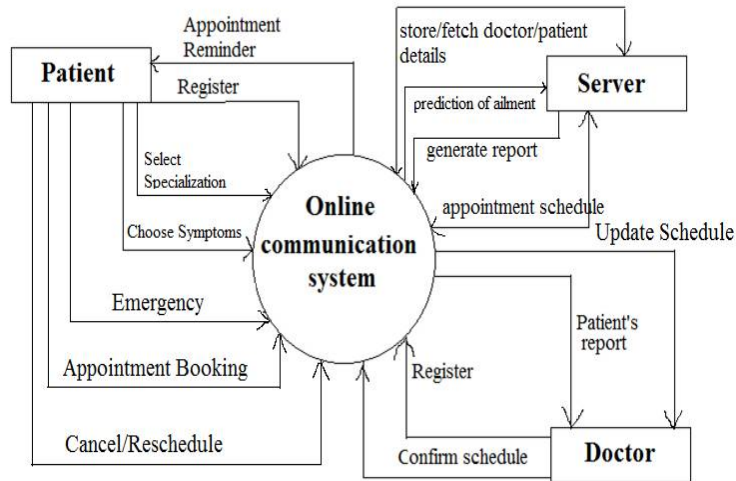Figure 2: Block diagram of the appointment application

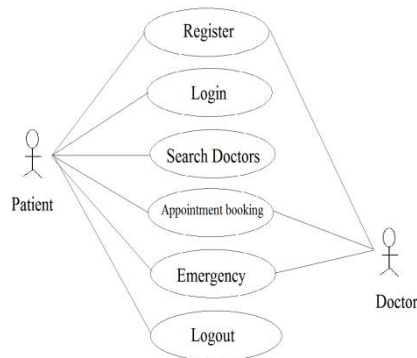Figure 3: Data Flow diagram showing communication between modules of Pat2Doc
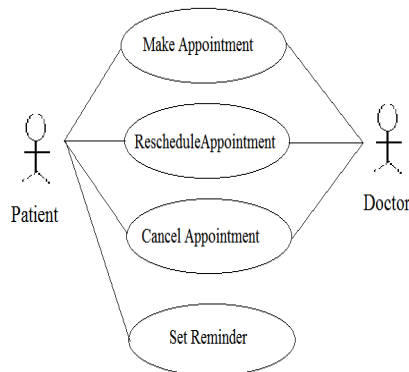

Figure 4: Use case diagram for login module of Pat2doc

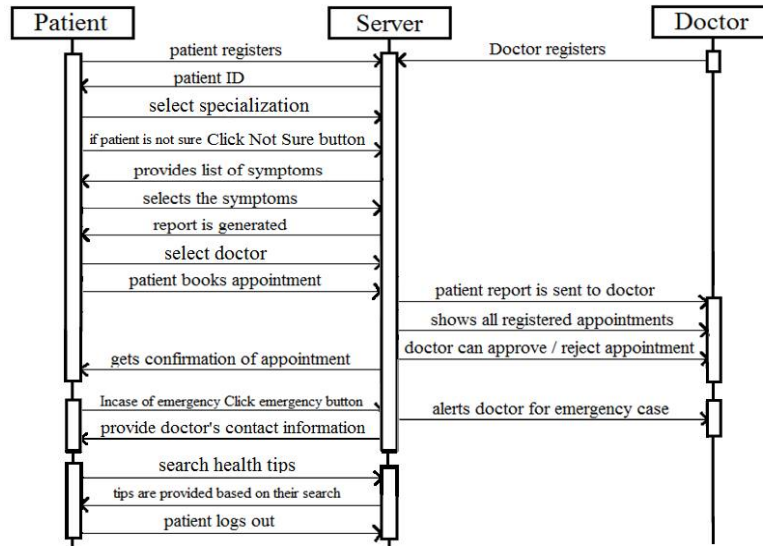Figure 5: Use case diagram for appointment booking module of Pat2Doc

Figure 6: Sequence diagram for Pat2Doc

The prediction of the possible health condition or the disease is based on the Bayesian Classification algorithm. This works on the symptoms provided by the patient and the data set in the database [8]. The symptoms are mapped to the dataset, and the possible condition is determined for which the patient can search for home remedies or take up an appointment with the doctor of his choice in his locality.

The scheduling of the appointment with the doctors is automated and uses the modified wave scheduling so that the patient need not wait for any confirmation from the doctor for appointment. The doctor is notified about his appointment with the patients on his application screen. The doctor can also do any catching up or take emergency cases when there are no appointments.

V.   RESULTS AND CONCLUSION

The application will prove very beneficial to doctors and patients. The application is a freeware, user friendly and easily accessible. Also it will save time, reduce the effort and paperwork of both patient as well as doctor.

This system aims to simplify the task of the patient and the doctor. It will make patients more relaxed as they do not have to stand in a long queue to fix their appointment and also book an appointment according to their choice in a more convenient way. Doctors need not worry about managing their appointment. Though you are not going to clinic for taking an appointment, your appointment gets booked from anywhere and however you want. This helps to save the time of patient. Also the patient can get the doctor of his choice through various filters used in the application. The doctor is also able to view his day to day appointment list which makes it easier for him to plan his schedule. This application will help to optimize the work of patient and doctor.

REFERENCES

[1]   Mark L.Murphy, "The Busy Coder's Guide to Android Development," United States of America, Commons Ware, LLC,2008.
[2]   Prof. S. B. Choudhari, Chaitanya Kusurkar, Rucha Sonje, Parag Mahajan, Joanna Vaz, "Android Application for Doctor"s Appointment" International Journal of Innovative Research in Computer and Communication Engineering , Vol 2, Issue 1 January 2014
[3]   Nikhil Pandey, Priti Kairate, Swarupa Shejal, Akshay Patil, Sheetal Thakare, "A Survey Paper on Android Based Doctor Patient Interaction System" International Journal for Scientific Research & Development, 2016
[4]   Hongxun Jiang, Wei Xu "How to find your appropriate doctor: An integrated recommendation framework in big data context"
[5]   Dimitris Tychalas, "Planning and Development of an Electronic Health Record Client based on the Android Platform," Panhellenic Conference on Information, 3-6, 2010(14).
[6]   Samyuktha Challa, G.Geethakumari, CSN Prasad "Patient Data Viewer: An android Application for Healthcare"
[7]   Collins Mwesigwa "An e-Health Tele-Media Application for Patient Management"
[8]   https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1271738/